[Son, J](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Son%2C%20Ji%2DWon%22%7C%7Csl%7E%7Erl','');" \o "Search for Son, Ji-Won) ; [Senk, S.](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Senk%2C%20Sharon%20L%2E%22%7C%7Csl%7E%7Erl','');) (2010). How Reform Curricula in the USA and Korea Present Multiplication and Division

of Fractions.[*Educational Studies in Mathematics*](javascript:__doLinkPostBack('','ss%7E%7EJN%20%22Educational%20Studies%20in%20Mathematics%22%7C%7Csl%7E%7Erl','');), v74 n2 p117-142.

This study analyzed the development of multiplication and division of fractions in two curricula: "Everyday Mathematics" (EM) from the USA and the 7th Korean mathematics curriculum (KM). Analyses of both the content and problems in the textbooks indicate that multiplication of fractions is developed in KM one semester earlier than in EM. However, the number of lessons devoted to the topic is similar in the two curricula. In contrast, division of fractions is developed at about the same time in both curricula, but due to different beliefs about the importance of the topic, KM contains five times as many lessons and about eight times as many problems about division of fractions as EM. In EM, conceptual understanding is developed first followed by procedural fluency, whereas in KM, they are developed simultaneously. The majority of fraction multiplication and division problems in both curricula requires only procedural knowledge. However, multistep computational problems are more common in KM than in EM, and the response types are also more varied in KM.

Sood, S; [Jitendra, A.](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Jitendra%2C%20Asha%20K%2E%22%7C%7Csl%7E%7Erl','');) (2007). A Comparative Analysis of Number Sense Instruction in Reform-Based and

Traditional **Mathematics** Textbooks. [*Journal of Special Education*](javascript:__doLinkPostBack('','ss%7E%7EJN%20%22Journal%20of%20Special%20Education%22%7C%7Csl%7E%7Erl','');), v41 n3 p145-157.

This study compared number sense instruction in three first-grade traditional **mathematics** textbooks and one reform-based textbook ("**Everyday** **Mathematics**" [EM]). Textbooks were evaluated with regard to their adherence to principles of effective instruction (e.g., big ideas, conspicuous instruction). The results indicated that traditional textbooks included more opportunities for number relationship tasks than did EM; in contrast, EM emphasized more real-world connections than did traditional textbooks.

[Fraivillig, J.](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Fraivillig%2C%20Judith%20L%2E%22%7C%7Csl%7E%7Erl','');); Murphy, L; [Fuson, K.](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Fuson%2C%20Karen%20C%2E%22%7C%7Csl%7E%7Erl','');) (1999). Advancing Children's Mathematical Thinking in **Everyday**

**Mathematics** Classrooms. [*Journal for Research in Mathematics Education*](javascript:__doLinkPostBack('','ss%7E%7EJN%20%22Journal%20for%20Research%20in%20Mathematics%20Education%22%7C%7Csl%7E%7Erl','');), v30 n2 p148-70.

Presents and describes a pedagogical framework that supports children's development of conceptual understanding of **mathematics**. Advancing Children's Thinking (ACT) is synthesized from an in-depth analysis of observed and reported data from one skillful first-grade teacher's use of the "**Everyday** **Mathematics**" curriculum. Indicates that teachers often support, but less often elicit or extend, children's mathematical thinking.

Crawford, D; [Snider, V.](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Snider%2C%20Vicki%20E%2E%22%7C%7Csl%7E%7Erl','');) (2000). Effective Mathematics Instruction: The Importance of Curriculum.

[*Education and Treatment of Children*](javascript:__doLinkPostBack('','ss%7E%7EJN%20%22Education%20and%20Treatment%20of%20Children%22%7C%7Csl%7E%7Erl','');)*,* v23 n2 p122-42.

A two-year study conducted in two fourth grade classrooms investigated the effectiveness of two mathematics curricula. Results found that a direct instruction program, "Connecting **Math** Concepts," resulted in significantly higher student scores on mathematics tests than the use of a **traditional** **math** basal textbook.

Varol, F; Farran, D. (2007). **Elementary** School Students' Mental **Computation** Proficiencies. *[Early](javascript:__doLinkPostBack('','ss%7E%7EJN%20%22Early%20Childhood%20Education%20Journal%22%7C%7Csl%7E%7Erl','');" \o "Search for Early Childhood Education Journal)*

*[Childhood Education Journal](javascript:__doLinkPostBack('','ss%7E%7EJN%20%22Early%20Childhood%20Education%20Journal%22%7C%7Csl%7E%7Erl','');" \o "Search for Early Childhood Education Journal),* v35 n1 p89-94.

Mental **computation** helps children understand how numbers work, how to make decisions about procedures, and how to create different strategies to solve math problems. Although researchers agree on the importance of mental **computation** skills, they debate how to help students develop these skills. The present study explored the existing literature in order to identify key points that are related to students' use of different mental calculation strategies in a variety of settings and their conceptual understanding of those strategies.

Epstein, D; [Miller, R.](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Miller%2C%20Raegen%20T%2E%22%7C%7Csl%7E%7Erl','');) (2011). Slow off the Mark: **Elementary** School Teachers and the Crisis in STEM

Education. [*Education Digest: Essential Readings Condensed for Quick Review*](javascript:__doLinkPostBack('','ss%7E%7EJN%20%22Education%20Digest%3A%20Essential%20Readings%20Condensed%20for%20Quick%20Review%22%7C%7Csl%7E%7Erl','');), v77 n1 p4-10.

Prospective teachers can typically obtain a license to teach **elementary** school without taking a rigorous college-level STEM class such as calculus, statistics, or chemistry, and without demonstrating a solid grasp of mathematics knowledge, scientific knowledge, or the nature of scientific inquiry. This is not a recipe for ensuring students have successful early experiences with **math** and science, or for generating the curiosity and confidence in these topics that students need to pursue careers in STEM fields. To improve STEM learning, it is important to strengthen the selection, preparation, and licensure of **elementary** school teachers. Higher standards for selection are needed into teacher preparation programs that include demonstrated proficiency in **math** and science at a level far higher than current teacher candidates. **Elementary** grade teacher preparation programs must include more--and more rigorous--**math** and science courses in both content and pedagogy, and teacher candidates must perform in these courses at the high levels. Furthermore, states must strengthen their licensure requirements so that teachers cannot obtain a license without passing the **math** and science sections of the exams. Recommendations for improving global competitiveness and strengthening **elementary** school teachers in **math** and science are offered.

[Agodini, R](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Agodini%2C%20Roberto%22%7C%7Csl%7E%7Erl','');); [Harris, B](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Harris%2C%20Barbara%22%7C%7Csl%7E%7Erl','');). (2010). An Experimental Evaluation of Four **Elementary** School **Math**

Curricula. [*Journal of Research on Educational Effectiveness*](javascript:__doLinkPostBack('','ss%7E%7EJN%20%22Journal%20of%20Research%20on%20Educational%20Effectiveness%22%7C%7Csl%7E%7Erl','');)*,* v3 n3 p199-253.

This article examines the effectiveness of four **elementary** school **math** curricula: (a) "Investigations in Number, Data, and Space"; (b) "**Math** Expressions"; (c) "Saxon **Math**"; and (d) "Scott Foresman-Addison Wesley Mathematics" ("SFAW"). These curricula are distinct from one another and represent many of the diverse approaches used to teach **elementary** school **math** in the United States. The results are based on 39 schools that were randomly assigned to use the various curricula at the first-grade level. The results show that average spring first-grade **math** achievement of "**Math** Expressions" and "Saxon" students was 0.30 SD higher than "Investigations" students and 0.24 SD higher than "SFAW" students. These effect sizes mean that an average-performing student's percentile rank in **math** would be 9 to 12 points higher if the school used "**Math** Expressions" or "Saxon," instead of "Investigations" or "SFAW." We also conducted correlational analyses that examine whether curriculum-group differences in **math** instructional time and content coverage account for the differences in curriculum effects and found that a portion of the relative effects is due to differences in content coverage.

Durik, A; [Eccles, J.](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Eccles%2C%20Jacquelynne%20S%2E%22%7C%7Csl%7E%7Erl','');) (2006). Classroom Activities in **Math** and Reading in Early, Middle, and Late

**Elementary** School.[*Journal of Classroom Interaction*](javascript:__doLinkPostBack('','ss%7E%7EJN%20%22Journal%20of%20Classroom%20Interaction%22%7C%7Csl%7E%7Erl','');), v41 n1 p33-41.

This study examined activities used during **elementary** school **math** and reading instruction. Teachers reported their use of cooperative, competitive, and individual activities in **math** and reading, their subjective evaluations of teaching each subject, and their level of focus on promoting students' interests. Analyses indicated that teachers used more competitive activities in **math** than reading. Additionally, individual **math** activities increased across grades whereas individual reading activities were similar across grades. Finally, the appeal of teaching both reading and **math** declined across **elementary** school grade. Results are discussed in terms of teachers' goals and student motivation.

Mong, M; [Mong, K.](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Mong%2C%20Kristi%20W%2E%22%7C%7Csl%7E%7Erl','');) (2010). Efficacy of Two Mathematics Interventions for Enhancing Fluency with

Elementary Students. [*Journal of Behavioral Education*](javascript:__doLinkPostBack('','ss%7E%7EJN%20%22Journal%20of%20Behavioral%20Education%22%7C%7Csl%7E%7Erl','');), v19 n4 p273-288.

An alternating treatments design was used to evaluate two curriculum-based mathematics interventions designed to enhance fluency with three elementary school students. Results indicate that both the **Math** to Mastery (MTM) intervention and the Cover, Copy, Compare (CCC) intervention were effective at increasing mathematics fluency, as measured by digits correct per min, for all students. However, MTM was more effective than CCC for two of the three students. Follow-up data taken 6 and 18 days following termination of the intervention phase indicated that all participants achieving mastery performance maintained mastery levels across both interventions.

Ramos-Christian, V; Schleser, R; [Varn, M.](javascript:__doLinkPostBack('','ss%7E%7EAU%20%22Varn%2C%20Mary%20E%2E%22%7C%7Csl%7E%7Erl','');) (2008). **Math** Fluency: Accuracy Versus Speed in Preoperational

and Concrete Operational First and Second Grade Children. [*Early Childhood Education Journal*](javascript:__doLinkPostBack('','ss%7E%7EJN%20%22Early%20Childhood%20Education%20Journal%22%7C%7Csl%7E%7Erl','');), v35 n6 p543-549.

Cognitive abilities as well as **math** fluency play an important role in mathematical skills. Understanding the relationship between cognitive abilities and mathematical skills is imperative to teaching effective arithmetic skills. The present study aimed to investigate the relationship between cognitive ability and **math** fluency with 38 first and second grade elementary aged children. Results demonstrate that preoperational children lacked the speed of concrete operational children but achieved comparable levels of accuracy when completing arithmetic problems.